



# AFCE University Fellowship Program

Cathy Dixon



# AFCI Objectives

## **Promote academic opportunities**

- **Highly motivated students**
- **Nuclear science and engineering**

## **Strengthen the academic and research infrastructure**

- **Maintain and advance nuclear and accelerator science, engineering and technology**

## **Engage creative academic talent in research areas**

- **Support the R&D plan of the AFCI program**

## **Strengthen relationships among universities and DOE laboratories**

# Reaching the Right Audience

**Department heads at U.S. universities with reactors, accelerators, or NE degree programs**

- Nuclear engineering
- Mechanical engineering
- Chemical engineering
- Physics
- Chemistry

**HBCU-MIs**

- Degrees in relevant technical areas

**Individuals at universities (active in accelerator research)**

**ANS**

- President
- Local sections
- Student chapters

# Selection Process

## **URA reviews applications**

- Checks for compliance with the intent of the solicitation
- Ranks the applications to facilitate the review

## **DOE, AFCI laboratory staff rank applications**

## **Recommendations to DOE**

## **Selection of fellows and alternates**



## 2002 AFCE Fellows

**Back Row:** Lee Van Duyn, ME - Georgia Tech; Will Wieselquist, R Ph - North Carolina State, Thomas Carter, NE - University of Florida (**ANL-E intern**); Frank Szakaly, N&RE - Texas A&M (**ORNL intern**); **Front Row:** Lisa Cordova, NE - University of New Mexico (**SNL intern**); Jennifer Ladd, CE - University of Tennessee-Knoxville (**ORNL intern**); Matt Sowa, NE - University of Michigan; **Not Pictured:** Billy Rothstein, NE - University of Illinois-Urbana-Champaign (**ANL-E intern**), and Michael Gregson, NE - University of Texas.



**Michael Gregson**

University of Texas  
Nuclear Engineering



**Billy Rothstein**

University of Illinois-Urbana/Champaign  
Nuclear Engineering



# 2002 AFCI Fellows Thesis Topics

**Tom Carter** - Feasibility of Mixed Carbide Fuels for Use in Transmutation Systems

**Lisa Cordova** - An Investigation of the Angular and Spatial Spreading of a Relativistic Proton Beam in a High Z Target, Like Tungsten

**Michael Gregson** - Review of Target Materials for Accelerator Transmutation of Waste (ATW) Systems

**Jennifer Ladd** - Separation of Residual Fluorinated Slag Containing Transuranium and Fission Products

**Billy Rothstein** - The Effect of Irradiation on Neutron Super Mirrors

**Matt Sowa** - Investigation of Pyrochlore and Zirconia as Inert Matrix Target Materials for Transmuting Transuranics

**Frank Szakaly** - Study of Nitride Fuels for Use in Fast Reactors for the Purpose of Waste Minimization and Waste Transmutation

**Lee Van Duyn** - Evaluation of a Non-Fertile Metal-Matrix Dispersion Fuel for Use in Plutonium Burning Light Water Reactors

**Will Wieselquist** - Investigation of the Impact of Specific Cross-Sections' Uncertainties on AAA Nuclear Fuel

# Meeting Our Objectives

## **Promoting Academic opportunities**

- 14 students actively in the AFCI program
- 5 masters degrees
- 3 theses completed, 3 theses near completion

## **Strengthening the academic and research infrastructure**

- Relationships with students at 15 universities

## **Engage creative academic talent in research areas**

- Average GPA - 3.69

## **Strengthen relationships among universities and DOE Labs**

- 9 students with national laboratory experience
- 6 National Laboratory collaborations  
(Los Alamos, Argonne East, Argonne West, Lawrence Livermore, Oak Ridge, Sandia)



# Developing THE AFCI Program

- **Attention to details**
- **Professional management with a personal touch**
- **Special opportunities**
- **Evaluations and refinements**